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Title 154 - STATE FIRE MARSHAL

Chapter 5 - STORAGE OF EXPLOSIVES

001. General.

001.01. The storage of explosive materials by any person must be in a manner conforming with the regulations contained herein. The storage regulations prescribed herein confer no rights or privileges to store explosive materials in a manner contrary to State or other law.

001.02. Notwithstanding the provisions of Section 001.01, the State Fire Marshal may authorize alternate storage facilities for the storage of explosive materials when it is shown that such alternate facilities are or will be constructed in a manner substantially equivalent to the standards of construction contained in this subpart. Such alternate storage facilities shall not be used for the storage of explosive materials until approval is received from the State Fire Marshal.

001.03. A permittee who intends to make additions to, modification of, or changes in his or her approved storage facilities shall follow the procedures and be subject to the requirements of Section 019.

001.04. Explosives shall not be stored within the incorporated limits of any city or village of the State of Nebraska. Explosives shall not be stored in or near areas containing two (2) or more residential properties which are on adjacent lots and owned or maintained by different parties.

001.05. All storage facilities shall be clearly marked as to that facility's contents. Markings shall be sufficient to give warning to persons in the area of the danger of the facility's content. This provision may be waived with the written consent of the State Fire Marshal.

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002. Classes of Explosive Materials. For purposes of this part, there shall be three classes of explosive materials. These classes, together with the description of explosive materials comprising each class, are as follows:

002.01. High Explosives. Explosive materials which can be caused to detonate by means of a blasting cap when unconfined. (For example, dynamite.)

002.02. Low Explosives. Explosive materials which can be caused to deflagrate when confined. (For example, black powder.)

002.03. Blasting Agents. (For example, ammonium nitrate-fuel oil.)

003. Types of Storage Facilities. For purposes of these regulations, there shall be five types of storage facilities. These types, together with the classes of explosive materials which shall be stored therein, are as follows:

003.01. Type 1 Storage Facilities. Permanent storage facilities for the storage of high explosives, subject to the limitations prescribed by Section 006 and 013 herein. Other classes may also be stored therein.

003.02. Type 2 Storage Facilities. Portable indoor and outdoor storage facilities for the storage of high explosives, subject to the limitations prescribed by Section 006, 008.02 and 013 herein. Other classes may also be stored therein.

003.03. Type 3 Storage Facilities. Portable outdoor facilities for the temporary storage of high explosives while attended (for example, a "day-box"), subject to the limitations prescribed by Sections 006 and 013 herein. Other classes may also be stored therein.

003.04. Type 4 Storage Facilities. Facilities for the storage of low explosives, subject to the limitations prescribed by Sections 006.02, 010.02 and 013 herein. Blasting agents may also be stored therein.

003.05. Type 5 Storage Facilities. Facilities for the storage of blasting agents, subject to the limitations prescribed by Sections 006.01 and 006.03, 011.02, and 013 herein.

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004. Inspection of Storage Facilities. Any person storing explosive materials shall open and inspect his or her storage facilities at intervals not greater than three (3) days to determine whether the explosives therein are intact and to determine whether there has been unauthorized entry or attempted entry into the storage facilities or the unauthorized removal of facilities or their contents.

005. Movement of Explosive Materials. All explosive materials must be kept in storage facilities meeting the standards prescribed by the State Fire Marshal unless they are:

005.01. In the process of manufacture; or

005.02. Being physically handled in the operating process of a person having permit to use; or

005.03. Being used; or

005.04. Being transported or loaded into a place of storage or use by a permittee or by a person who has lawfully acquired explosive materials pursuant to the requirements of Section 020.

006. Location of Storage Facilities.

006.01. Except as otherwise provided in these regulations, storage facilities in which any explosive materials are stored shall be located at minimum distances from inhabited buildings, passenger railways, public highways, and from other storage facilities in which explosive materials are stored as specified in the American Table of Distances, (see Appendix V), provided that this table shall not apply to any indoor storage facility. When a storage facility is not barricaded, the distances shown in the American Table of Distances shall be doubled. For purposes of this paragraph, a storage facility shall be deemed barricaded when it is effectually screened from inhabited buildings, passenger railways, public highways, and other storage facilities in which explosive materials are stored either by a natural or artificial barricade of such height that a straight line from the top of any sidewall of the storage facility to the eave line of such other

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inhabited building or storage facility, or to a point 12 feet above the center of a passenger railway or public highway, will pass through such intervening barricade.

006.02. If any two or more storage facilities are separated from each other by less than the distances specified in Appendix V, then such two or more storage facilities, as a group, shall be considered as one storage facility, and the total quantity of explosive material stored in such group shall be treated as if stored in a single facility and shall comply with the minimum of distances specified in Appendix V from other storage facilities, inhabited buildings, passenger railways, and public highways.

006.03. Storage facilities in which low explosives are stored shall be located at minimum distances from inhabited buildings, passenger railways, public highways, and from other storage facilities in which explosive materials are stored as specified in the Table of Distances for Storage of Low Explosives, Appendix VI. Provided, that this table shall not apply to any indoor storage facility. The distances shown therein shall not be reduced by the presence of barricades.

006.04. Ammonium nitrate and storage facilities in which blasting agents are stored shall be located at minimum distances from storage facilities containing high explosives or blasting agents as specified in the Table of Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents, Appendix VII.

007. Construction of Type 1 Storage Facilities. A type 1 storage facility shall be a permanent structure: a building, an igloo or Army-type structure, a tunnel, or a dugout. It shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated.

007.01. Buildings. All building type storage facilities shall be constructed of masonry, wood, metal, or a combination of these materials and shall have no openings except for entrances and ventilation. Ground around such storage facilities shall slope away for drainage.

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007.01A. Masonry Wall Construction. Masonry wall construction shall consist of brick concrete, tile, cement block, or cinder block and shall be not less than 6 inches in thickness. Hollow masonry units used in construction shall have all hollow spaces filled with well-tamped coarse dry sand or weak concrete (a mixture of one part cement and eight parts of sand with enough water to dampen the mixture while tamping in place). Interior walls shall be covered with a non-sparking material.

007.01B. Fabricated Metal Wall Construction. Metal wall construction shall consist of sectional sheets of steel or aluminum not less than number 14 gauge, securely fastened to a metal framework. Such metal wall construction shall be either lined inside with brick, solid cement blocks, hardwood not less than 4 inches in thickness, or shall have at least a 6-inch sand fill between interior and exterior walls. Interior walls shall be constructed of, or covered with, a non-sparking material.

007.01C. Wood Frame Wall Construction. The exterior of outer wood walls shall be covered with iron or aluminum not less than number 26 gauge. An inner wall of non-sparking material shall be constructed so as to provide a space of not less than 6 inches between the outer and inner walls, which space shall be filled with coarse dry sand or weak concrete.

007.01D. Floors. Floors shall be constructed of a non-sparking material and shall be strong enough to bear the weight of the maximum quantity to be stored.

007.01E. Foundations. Foundations shall be constructed of brick, concrete, cement block, stone or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the buildings shall be enclosed with metal.

007.01F. Roof. Except for buildings with fabricated metal roofs, the outer roof shall be covered with no less than number 26-gauge iron or aluminum fastened to 3/4 inch sheathing.

007.01G. Bullet-Resistant Ceilings or Roofs. Where it is possible for a bullet to be fired directly through the roof and into the storage facility at such an angle that the bullet would strike a point below the top of inner walls, storage facilities shall be protected by one of the following methods:

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007.01G1. A sand-tray shall be located at the tops of inner walls covering the entire ceiling area, except that necessary for ventilation, lined with a layer of building paper, and filled with not less than 4 inches of coarse dry sand.

007.01G2. A fabricated metal roof shall be construction of 3/16-inch plate steel lined with 4 inches of hardwood. (For each additional 1/16-inch of plate steel, the hardwood lining may be decreased 1 inch.)

007.01H. Doors. All doors shall be constructed of 1/4-inch plate steel and lined with 2 inches of hardwood. Hinges and hasps shall be attached to the doors by welding, riveting or bolting (nuts on inside of door). They shall be installed in such a manner that the hinges and hasps cannot be removed when the doors are closed and locked. The use of 14-gauge steel plus 4 inches of hardwood for construction of magazine doors is approved as substantially meeting the requirements of this section.

007.01I. Locks. Each door shall be equipped with two mortise locks; or with two padlocks fastened in separate hasps and staples; or with a combination of mortise lock and padlock; or with a mortise lock that requires two keys to open; or a three-point lock. Locks shall be five-tumbler proof. All padlocks shall be protected with 1/2-inch steel caps constructed so as to prevent sawing or lever action on the locks or hasps. Semitrailers, tank trucks and other mobile storage facilities locked with one steel case hardened five-tumbler padlock, having at least 7/16-inch shackle diameter are determined to meet the necessary requirements of this section provided that hinges and hasps are securely fastened to the storage facility and that all locking hardware is secured rigidly and directly to the door frame. Accordingly, only one such padlock will be required for each door or opening for semitrailers, tank trucks and other mobile facilities; and such padlocks need not be protected by steel caps.

007.01J. Ventilation. Except at doorways, a 2-inch air space shall be left around ceilings and the perimeter of floors. Foundation ventilators shall be not less than 4 by 6 inches. Vents in the foundation, roof or gables shall be screened and offset. The side wall and door ventilator that are screened and bullet-resistant can be substituted for foundation ventilators.

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007.01K. Exposed Metal. No sparking metal construction shall be exposed below the top of walls in the interior of storage facilities, and all nails therein shall be blind-nailed or countersunk.

007.02. Igloos, Army-Type Structures, Tunnels, and Dugouts. Igloo, Army-type structures, tunnel, and dugout storage facilities shall be constructed of reinforced concrete masonry, metal or a combination of these materials. They shall have an earthmound covering of not less than 24 inches on the top, sides and rear. Interior walls and floors shall be covered with a non-sparking material. Storage facilities of this type shall also be constructed in conformity with the requirements of Sections 007.01D and 007.01H through 007.01K.

008. Construction of Type 2 Storage Facilities. A type 2 storage facility shall be a box, a trailer, a semitrailer, or other mobile facility. It shall be bullet-resistant, weather-resistant, theft-resistant, fire-resistant, and well ventilated. Except as provided in Section 008.03, hinges and hasps shall be attached to the covers or doors in the manner prescribed in Section 007.01H and the locking system shall be that prescribed in Section 007.01I herein.

008.01. Outdoor Storage Facilities. Outdoor storage facilities shall be at least 1 cubic yard in size and supported in such a manner so as to prevent direct contact with the ground. The sides, bottoms, tops and covers or doors shall be constructed of  $\frac{1}{4}$ -inch steel and shall be lined with 2 inches of hardwood. Edges of metal covers shall overlap sides at least 1 inch. The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the State Fire Marshal.

008.02. Indoor Storage Facilities. No indoor facility for the storage of high explosives shall be located in a residence or dwelling. When located in a warehouse, wholesale, or retail establishment, such storage facilities shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than two indoor storage facilities shall be kept in any one building. Two storage facilities may be kept in the same building only when one is used for the storage of blasting caps, squibs, or similar items and the other facility is used for the storage of other high explosives. Each storage facility shall be located on the floor nearest the ground level and within 10 feet of an outside exit. Indoor storage facilities within one building shall be separated by a distance of not less than 10 feet. No indoor storage facility shall contain a quantity of high explosives in excess of 50 pounds or more than 5,000 blasting caps. Indoor facilities shall be of wood or metal construction as prescribed in Sections 008.02A or 008.02B.

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008.02A. Wood Construction. Wood indoor storage facilities shall have sides, bottoms, and covers or doors constructed of 2-inch hardwood and shall be well braced at corners. They shall be covered with sheet metal of not less than number 20 gauge. Nails exposed to the interior of such facilities shall be countersunk.

008.02B. Metal Construction. Metal indoor storage facilities shall have sides, bottoms, and covers of doors constructed of number 12-gauge metal and shall be lined inside with a non-sparking material. Edges of metal covers shall overlap sides at least one inch.

008.03. Cap Boxes. Storage facilities for blasting caps in quantities of 100 or less shall have sides, bottoms, and covers constructed of number 12-gauge metal and lined with a non-sparking material. Hinges and hasps shall be attached thereto by welding. A single five-tumbler proof lock shall be sufficient for locking purposes.

009. Construction of Type 3 Storage Facilities. A type 3 storage facility shall be a "day-box" or other portable facility. It shall be constructed in the same manner prescribed for type 2 outdoor storage facilities as prescribed in Section 008.01 herein, except that it may be less than 1 cubic yard in size, and shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated. Hinges, hasps, locks and lock protection shall be in conformity with the requirements of Section 007.01H and 007.01I herein. The ground around such storage facilities shall slope away for drainage. No explosive materials shall be left in such facilities if unattended. The explosive materials contained therein must be removed to types 1 and 2 storage facilities for unattended storage.

010. Construction of Type 4 Storage Facilities. A type 4 storage facility may be a building, an igloo, or Army-type structure, a tunnel, a dugout, a box, a trailer, or a semitrailer or other mobile facility and shall be fire-resistant, weather-resistant, and theft-resistant. They shall be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. The walls and floors of such storage facilities shall be lined with a non-sparking material. The doors or covers shall be metal or solid wood covered with metal. The foundations, locks, lock protection, hinges, hasps, and interior shall be in conformity with the requirements of Section 007.01E, 007.01H, 007.01I and 007.01K herein.



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010.01. Outdoor Storage Facilities. The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the State Fire Marshal.

010.02. Indoor Storage Facilities. No indoor facility for the storage of low explosives shall be located in a residence or dwelling. When located in a warehouse, wholesale or retail establishment, such storage facilities shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than one indoor storage facility shall be kept in any one building. It shall be located on the floor nearest the ground level and within 10 feet of an outside exit. No indoor storage facility shall contain a quantity of low explosives in excess of 50 pounds.

011. Construction of Type 5 Storage Facilities. A type 5 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a bin, a box, a trailer, or a semitrailer or other mobile facility and shall be theft-resistant. The door or covers thereof shall be solid wood or metal. The hinges, hasps, locks and lock protection shall be in conformity with the requirements of Section 007.01H and 007.01I herein.

011.01. Outdoor Storage Facilities. The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the State Fire Marshal.

011.02. Indoor Storage Facilities. No indoor storage facility for the storage of blasting agents shall be located in a residence or dwelling.

012. Smoking and Open Flames. Smoking, matches, open flames, and spark-producing devices shall not be permitted in, or within 50 feet of, any outdoor storage facility.

013. Quantity and Storage Restrictions. Explosive materials in excess of 300,000 pounds and blasting caps in excess of 20 million shall not be stored in one storage facility. Blasting caps shall not be stored with other explosive materials in the same storage facility.

014. Storage Within Types 1, 2, 3 and 4 Facilities.

014.01. Explosive materials within a storage facility shall not be placed directly against interior walls. Any devices constructed or placed within a storage facility shall not interfere with ventilation.

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014.02. Containers of explosive materials shall be stored by being laid flat with top sides up. Corresponding classes, grades, and brands shall be stored together within a storage facility in such a manner that class, grade, and brand marks are easily visible upon inspection. Stocks of explosive materials shall be stored so as to be easily counted and checked.

014.03. Except with respect to fiberboard containers, explosive materials shall not be unpacked or repacked inside a storage facility or within 50 feet thereof, and shall not be unpacked or repacked in close proximity to other explosive materials. Containers of explosive materials shall be securely closed while being stored.

014.04. Tools used for opening or closing containers of explosive materials shall be of non-sparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and a fiber, rubber, or wooden mallet shall be used for opening or closing wood containers of explosive materials. Metal tools other than non-sparking transfer conveyors shall not be stored in any storage facility containing high explosives.

015. Housekeeping. Storage facilities shall be kept clean, dry and free of grit, paper, empty packages and containers, and rubbish. Floors shall be regularly swept. Brooms and other utensils used in the cleaning and maintenance of storage facilities shall have no spark-producing metal parts. Floors stained by leakage from explosive materials shall be cleaned according to instructions of the manufacturer. When any explosive material has deteriorated to the extent that it is in a dangerous condition, or if a liquid leaks therefrom, it shall be destroyed in accordance with the instructions of its manufacturer. The area surrounding storage facilities shall be kept clear of rubbish, brush, dry grass, or trees for not less than 25 feet in all directions. Any other combustible materials shall be kept a distance of not less than 50 feet from outdoor storage facilities. We have approved a request to permit trees to grow within 25 feet of a magazine for barricade protection purposes provided that such trees are living and at least 10-feet high.

015.01. Storage facilities shall not contain or house any amount of flammable or combustible material.

016. Repair of Storage Facilities. Prior to the interior repair of storage facilities, all explosive materials shall be removed and the interior shall be cleaned. Prior to the exterior repair of storage facilities, all explosive materials shall be removed if there exists a possibility that such repairs may produce sparks or flame. The explosive materials removed from storage facilities under repair shall either be placed in other storage facilities appropriate for the storage of such materials under this sub-part or placed a safe distance from the facilities under repair where they shall be properly guarded and protected until the repairs have been completed.

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017. Lighting. No lighting shall be placed or used in a storage facility of type 1, 2, 3 or 4 except battery-activated safety lights or battery-activated safety lanterns, or sparkproof flashlights. The use of electrical lights when meeting appropriate electrical building codes and when used only in storage magazines that are located inside explosive manufacturing plants is approved. Also approved are glass openings in the manufacturing plant magazines in order to permit illuminating lights from the outside.

018. Security of Magazines. The keys to any magazine doors and covers must be available only to trusted employees appointed in writing and preferably a permittee. It is the storage permittee's responsibility to keep his or her magazines locked from all unauthorized persons. Publicly owned electric distribution, public utilities and privately owned electric distribution, public utilities and communications systems may, at their discretion, designate certain employees who will be responsible for the inspection and security of stored explosives. It is permissible for these persons to have keys to the storage permittee's magazine.

019. Change of Location; Change in Construction.

019.01. Other than storage facilities. Except as provided in section 019.02, a permittee may during the term of his or her permit remove his or her business or operations to a new location at which he or she intends regularly to carry on such business or operations, without procuring a new permit. However, in every case, notification of the new location of the business or operations must be given not less than 10 days prior to such removal to the State Fire Marshal. In each instance, the permit and any copies thereof furnished with the permit must be submitted for endorsement to the State Fire Marshal. After endorsement of the permit and the copies thereof to show the new location and the new permit number, if any, the State Fire Marshal will return same to the permittee.

19.02. Storage Facilities. A permittee who intends to change the location of his or her approved storage facility described in his or her application (other than a change of location of a portable approved storage facility) during the term of his or her permit shall make written application, in duplicate, to the State Fire Marshal who issued the permit, describing the location, the type of construction, and the class of explosive materials as prescribed herein. The application may include a request for approval of specific successive changes in location of an approved storage facility. Storage of explosive materials may not be commenced at the new location prior to receipt of the copy of such application stamped "approved".

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019.03. Additions to or Changes in Storage Facilities. A permittee who intends to make additions to or changes in construction of approved storage facilities described in his or her application, shall file an application with the State Fire Marshal for an amended permit, describing the proposed additions or changes. Additions to or changes in construction of approved storage facilities may not be made prior to issuance of the amended permit. Upon receipt of the amended permit, the permittee shall submit his or her superseded permit and any copies thereof to the State Fire Marshal.

020. Record Keeping and Permitted Transactions.

020.01. All transfers of explosives occurring within the State are illegal except the following:

020.01A. Any holder of any permit required under Sections 28-1213 to 28-1239, Neb. Rev. Stat. (Reissue 1979) or a federal permittee or licensee may transfer explosive materials to the holder of any permit issued by the State Fire Marshal or to a federal licensee or permittee or to a permittee or licensee holding a permit or license issued under the laws of another state, provided, appropriate and accurate record keeping as further prescribed in these rules and regulations are followed.

020.01B. All other transfers are illegal.

020.01C. Under no conditions may any permit holder herein physically transfer to another person in the State of Nebraska any explosive materials unless the transferee physically shows the license or permit which is authorization to take possession of such explosive materials. Such transferee must show that he or she holds a permit issued by the State Fire Marshal, an equivalent permit or license from another state, or is a federal licensee or permittee.

020.02. Every person in possession of a storage permit shall maintain an accurate inventory of all explosives in his possession. Each transfer of explosive materials to other persons must be recorded to include a statement of intended use by the transferee, his or her name, date and place of birth, social security number or taxpayer identification number, and place of residence, and permit number

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authorizing possession in said transferee. Federal permittees and licensees in compliance with federal record-keeping provisions shall be deemed in compliance with these record-keeping provisions.

020.03. Where the storage permittee is transferring the explosive materials to his or her own agent or servant for immediate detonation, a blasting log must be maintained describing the time, place, amount, and type of explosives used in the blasting operation.

020.04. Every storage permit holder shall use such accounting methods as are adequate to determine upon inventory whether or not any explosives are unaccounted for. Further inventories to determine whether explosives are unaccounted for must be made on the first day of each calendar quarter. Shortages in excess of  $\frac{1}{2}$  of 1 percent of the inventory which ought to be on hand must be reported within 24 hours of discovery, in writing to the State Fire Marshal.

020.05. Holders of business enterprise purchase permits or use permits must in all cases maintain a log recording explosive materials that come into its possession, stating amount and type of explosive materials. Disposition of such explosives must be shown. If such explosives are transferred to another, the information required in Section 020.02 and the proof of transferee's authority required in Section 020.01C must be obtained. Where such explosives are detonated, a blasting log must be maintained describing the time, place, amount and type of explosive materials used in the blasting operations. Where the same person possesses a storage permit, a business enterprise purchase permit, and a user's permit or has employees possessing users' permits, compliance with the record keeping provisions of Section 020.02 through 020.04 to that person's storage permit will be deemed compliance with this section pertaining to that person's purchase permit, use permit and employees' use permits, provided that accounting methods used are adequate to discover all shortages not accounted for by detonation or valid transfers.

Statutory Authority: Neb. Rev. Stat. §§28-1213 to 28-1239; 81-502.

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